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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,114	09/25/2006	Hideo Noro	00862.109670.	7038

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EXAMINER	
MARTELLO, EDWARD	

ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,114	NORO ET AL.	
	Examiner	Art Unit	
	Edward Martello	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) *7 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/25/2006, 11/08/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 7 and 8 are canceled while the original claims 1 and 2, amended claims 3-6 and the added claim 9 are pending for examination.

Specification

2. The abstract of the disclosure is objected to because it contains numbered reference designations which should not be used in an abstract. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaszlics et al. (U. S. Patent 6,166,744, hereafter '744) and further in view of Lescinsky et al. ("Interactive Scene Manipulation in the Virtue3D System," ACM Weg3D'02, pp. 127-135, February 24-28, 2002, Tempe, Arizona, ACM 1-58113-468-1/02/0002, hereafter '468).

4. Regarding claim 1 (Original), Jaszlics teaches an image processing method of presenting a virtual object superimposed on a physical space to an observer ('744 Abstract, col. 10, ln. 1-9), characterized by comprising: a holding step of holding, in a memory (global memory, '744; fig. 20), information of a state of each virtual object included in a virtual space ('744; col. 14, ln. 32-52); an association step of associating at least one virtual object included in the virtual space with at least one position/orientation sensor which is held in a hand of the observer and manipulated (joystick; '744; col. 10, ln. 35-38); col. 11, ln. 47-56); a layout step of laying out, in the virtual space, the virtual object associated with the position/orientation sensor in the association step in accordance with a position and orientation of the position/orientation sensor itself, which are determined on the basis of a measurement result by the position/orientation sensor ('744; col. 10, ln. 35-38; col. 11, ln. 47-56); but does not teach a presentation step of presenting the state of each virtual object included in the virtual space to the observer on the basis of the information held in the holding step; an input step of inputting an operation to change a desired one of the states presented in the presentation step; and continues to teach an updating step of updating the information in accordance with the operation input in the input step ('744; col. 11, ln. 47-56). Lescinsky, working in the same field of endeavor, however, teaches a presentation step of presenting the state of each virtual object included in the virtual space to the observer on the basis of the information held in the holding step ('468; fig. 4; pg. 313, col. 2, § 8; pg. 132, col. 1, § 9); for the benefit of allowing the user to easily edit and control virtual objects and the composed scene in a natural way. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rich teachings of Jaszlics' virtual and physical scene

simulation with the scene manipulation teachings of Lescinsky for the benefit of allowing the user to easily edit and control virtual objects and the composed scene in a natural way.

5. In regards to claim 2 (Original), Jaszlics further teaches the method characterized by further comprising a registration step of registering, in the information, the position and orientation of the position/orientation sensor itself, which are determined on the basis of the measurement result by the position/orientation sensor as a position and orientation of the virtual object associated with the position/orientation sensor in the association step, wherein in the layout step, the virtual object is laid out in the virtual space by using the position and orientation of the virtual object registered in the information in the registration step ('744; col. 11, ln. 30-63).

6. Regarding claim 3 (Currently Amended), Jaszlics and Lescinsky teach the method according to claim 1 and Lescinsky further teaches wherein the information includes a name (model ID) ('486; pg. 134, col. 1, "To set and get Model Properties"), but does not teach blinking state, selected/unselected state, and section display state of the virtual object. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the general properties, methods, constraints and scene methods structures laid out in Lescinsky ('486; pg. 134, col. 1 and 2) to define blinking state, selected/unselected state, and section display state of the virtual object objects and methods for the benefit of instancing these attributes and allowing user to control these attributes. The VRML construct generation module in fig. 40, element 246 ('744; col. 14, ln. 40-52) assembles data strings describing the individual virtual objects (VMO), handling the VRML constructs taught by Lescinsky).

7. In regards to claim 4 (Currently Amended), Jaszlics teaches an image processing method, including the steps of: acquiring position and orientation information of an observer ('744; col. 10, ln. 52-60), acquiring an image of a physical space ('744; col. 9, ln. 42-47); generating an image of a virtual space in accordance with the position and orientation information of the observer ('744; col. 9, ln. 32-57); compositing the image of the physical space and the image of the virtual space and displaying the composited image on a head mounted display worn by a user ('744; col. 9, ln. 32-57); generating an operation panel image and compositing the operation panel image with the image of the physical space and the image of the virtual space ('744; fig. 21; col. 15, ln. 5-25); acquiring position information of an operation unit operated by the observer('744; col. 11, ln. 30-63); and updating the operation panel image in accordance with a positional relationship between the operation panel image and the operation unit ('744; col. 15, ln. 31-47), but does not teach wherein in the operation panel image, a part selected by the operation unit is enlarged. Jaszlics, however, teaches magnification of virtual gun sights under user control ('744, table 3, col. 11, ln. 24-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to extend Jaszlics teachings of gun sight magnification and provide magnification of an area selected by a user or user motions for the benefit of enhancing the simulation process.

8. Regarding claim 5 (Currently Amended), Jaszlics teaches the method according to claim 4, wherein the image of the virtual space is generated on the basis of a 3D CAD data of a virtual object ('744; claim 19; virtual reality modeling language (VRML), but does not teach the operation panel contains an assembly tree based on the 3D CAD data, and the enlarged part includes a component name contained in the assembly tree. Lescinsky, however, teaches the

operation panel contains an assembly tree based on the 3D CAD data, and the enlarged part includes a component name contained in the assembly tree for the benefit of allowing the user to easily edit and manipulate the properties of the virtual objects ('468; fig. 4, pg. 133, § 9).

9. Regarding claim 6 (Currently Amended), Jaszlics teaches an image processing apparatus for presenting a virtual object superimposed in a physical space to an observer ('744 Abstract, col. 10, ln. 1-9), comprising: a holding unit adapted to hold information of a state of each virtual object included in a virtual space (global memory, '744; fig. 20); an association unit (virtual simulation computer; '744; fig. 16, element 210) adapted to associate at least one virtual object included in the virtual space with at least one position/orientation sensor (joystick; '744; col. 10, ln. 35-38); col. 11, ln. 47-56) manipulated by the observer (virtual simulation computer; '744; fig. 16, element 210, implementing the processes of Fig. 20); a layout unit (virtual simulation computer; '744; fig. 16, element 210) adapted to lay out, in the virtual space, the virtual object associated with the position/orientation sensor by said association unit in accordance with a position and orientation of the position/orientation sensor itself, which are determined on the basis of a measurement result by the position/orientation sensor (virtual simulation computer; '744; fig. 16, element 210, implementing the processes of Fig. 20); a presentation unit (virtual simulation computer and display; '744; fig. 16, elements 210 and 211) but does not teach adapted to present the state of each virtual object included in the virtual space to the observer on the basis of the information held by said holding unit; and continues to teach an input unit (joystick; '744; col. 10, ln. 35-38); col. 11, ln. 47-56) adapted to input an operation to change a desired one of the states presented by said presentation unit (virtual simulation computer and display; '744; fig. 16, elements 210 and 211, implementing the processes of Fig. 20); and an

updating unit (virtual simulation computer; '744; fig. 16, element 210) adapted to update the information in accordance with the operation input by said input unit (virtual simulation computer; '744; fig. 16, element 210, implementing the processes of Fig. 20). Lescinsky, working in the same field of endeavor, however, teaches a presentation step of presenting the state of each virtual object included in the virtual space to the observer on the basis of the information held in the holding step ('468; fig. 4; pg. 313, col. 2, § 8; pg. 132, col. 1, § 9); for the benefit of allowing the user to easily edit and control virtual objects and the composed scene in a natural way. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rich teachings of Jaszlics' virtual and physical scene simulation with the scene manipulation teachings of Lescinsky for the benefit of allowing the user to easily edit and control virtual objects and the composed scene in a natural way.

10. Claims 7-8. (canceled)

11. Regarding claim 9 (New), Jaszlics teaches a computer-readable medium encoded with a computer program for causing a computer to execute an image processing method of presenting a virtual object superimposed on a physical space to an observer ('744 Abstract, col. 10, ln. 1-9), comprising: a holding step of holding, in a memory (global memory, '744; fig. 20), information of a state of each virtual object included in a virtual space ('744; col. 14, ln. 32-52); an association step of associating at least one virtual object included in the virtual space with at least one position/orientation sensor which is held in a hand of the observer and manipulated (joystick; '744; col. 10, ln. 35-38); col. 11, ln. 47-56); a layout step of laying out, in the virtual space, the virtual object associated with the position/orientation sensor in the association step in accordance with a position and orientation of the position/orientation sensor itself, which are determined on

the basis of a measurement result by the position/orientation sensor ('744; col. 10, ln. 35-38; col. 11, ln. 47-56); but does not teach a presentation step of presenting the state of each virtual object included in the virtual space to the observer on the basis of the information held in the holding step; an input step of inputting an operation to change a desired one of the states presented in the presentation step; and continues to teach an updating step of updating the information in accordance with the operation input in the input step ('744; col. 11, ln. 47-56). Lescinsky, working in the same field of endeavor, however, teaches a presentation step of presenting the state of each virtual object included in the virtual space to the observer on the basis of the information held in the holding step ('468; fig. 4; pg. 313, col. 2, § 8; pg. 132, col. 1, § 9); for the benefit of allowing the user to easily edit and control virtual objects and the composed scene in a natural way. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the rich teachings of Jaszlics' virtual and physical scene simulation with the scene manipulation teachings of Lescinsky for the benefit of allowing the user to easily edit and control virtual objects and the composed scene in a natural way.

Conclusion

The following prior art, made of record, was not relied upon but is considered pertinent to applicant's disclosure:

US 20030142067 A1	Three dimensional volumetric display input and output configurations -- Directed to input and output configurations for three-dimensional volumetric displays that allow the content of a three-dimensional volumetric display to be affected by actions by a user.
US 6466232 B1	Method and system for controlling presentation of information to a user based on the user's condition – The user's condition is determined by integrating the output of a large number of sensors associated with the user.

US 6408257 B1 Augmented-reality display method and system

US 5590062 A Simulator for producing various living environments mainly for visual perception – Virtual reality construction of 3D spaces for designers and clients allowing the building and manipulation of the 3D scenes by the user in real-time via a heads-up display and hand controller device simulator environment.

Althoff et al.; "A Generic Approach for Interfacing VRML Browsers to Various Input Devices and Creating Customizable 3D Applications," ACM Weg3D'02, pp. 67-74, February 24-28, 2002, Tempe, Arizona, ACM 1-58113-468-1/02/0002

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Martello whose telephone number is (571) 270-1883. The examiner can normally be reached on M-F 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/EM/

Examiner, Art Unit 2628

/XIAO M. WU/
Supervisory Patent Examiner, Art Unit 2628